

Amendments to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in this application.

Listing of Claims:

- Claim 1. (Currently Amended) A method for the diagnosis of Alzheimer's disease a neurological condition in a human subject, wherein said neurological condition is selected from the group consisting of: Alzheimer's disease; incipient Alzheimer's disease; possible Alzheimer's disease; and Alzheimer's disease associated with evidence of other type of dementia; which comprises screening for the presence of a cell cycle regulatory defect at the G1/S phase transition in non-neuronal cells of the human subject wherein said method comprises the steps of:
(A) determining the effectiveness of the G1/S cell cycle checkpoint exhibited by a non-neuronal cell of said subject; and
(B) comparing said determined G1/S cell cycle checkpoint effectiveness with the G1/S cell cycle checkpoint effectiveness exhibited by a non-neuronal reference cell of a healthy individual or of an individual having said neurological condition, to thereby diagnose whether said subject has said neurological condition.
- Claim 2. (Currently Amended) The method of A method according to claim 1 wherein said neurological condition is a reduction in the effectiveness of the checkpoint control at the G1/S transition is taken as an indication that the subject has Alzheimer's disease.
- Claim 3. (Currently Amended) A method according to claim 1 or claim 2 wherein screening for the presence of a cell cycle regulatory defect at the G1/S phase transition The method of any of claims 1-2 wherein said step (A) is carried out

by: inducing cell division in the said non-neuronal cells cell and testing the responsiveness of the cells said non-neuronal cell of said subject to a cell division G1 inhibitor substance, wherein a reduced responsiveness to the said cell division G1 inhibitor substance in cells from the subject, as compared to control cells not having a cell cycle regulatory defect at the G1/S phase transition, is taken as an indication of presence of a cell cycle regulatory defect at the G1/S phase transition by said non-neuronal cell of said subject relative to that of a non-neuronal reference cell of a healthy individual indicates decreased effectiveness of the G1/S cell cycle checkpoint.

Claim 4. (Canceled)

Claim 5. (Currently Amended) A method according to claim 1 or claim 2 wherein screening for the presence of a cell cycle regulatory defect at the G1/S phase transition The method of any of claims 1-2 wherein said step (A) is carried out by: inducing cell division in the said non-neuronal cells cell and testing the responsiveness of the cells said non-neuronal cell of said subject to a stimulus that induces G1 cell cycle arrest, wherein a reduced responsiveness to said stimulus in cells from the subject, as compared to control cells not having a cell cycle regulatory defect at the G1/S phase transition, is taken as an indication of presence of a cell cycle regulatory defect at the G1/S phase transition by said non-neuronal cell of said subject relative to that of a non-neuronal reference cell of a healthy individual indicates decreased effectiveness of the G1/S cell cycle checkpoint.

Claim 6. (Currently Amended) A method according to claim 5 The method of claim 5, wherein the stimulus that induces cell cycle arrest is selected from oxidative stress, ionizing ionising radiation, hypoxia, or UV radiation.

Claim 7. **(Withdrawn – Currently Amended)** A method according to The method of claim 3 wherein the responsiveness of said non-neuronal cell of said subject to the cells to the said cell division G1 inhibitor substance or stimulus that induces cell cycle arrest is tested is determined by a cell proliferation assay, wherein relatively higher proliferative activity in said non-neuronal cell of said subject cells from the subject, as compared to control cells not having a cell cycle regulatory defect at the G1/S phase transition; following treatment with said the cell division G1 inhibitor substance or stimulus that induces cell cycle arrest being taken as an indication of the presence of a cell cycle regulatory defect at the G1/S phase transition relative to that of a non-neuronal reference cell of a healthy individual indicates decreased effectiveness of the G1/S cell cycle checkpoint.

Claim 8. **(Currently Amended)** A method according to The method of claim 3, wherein the responsiveness of the cells said non-neuronal cell of said subject to the said cell division G1 inhibitor substance or stimulus that induces cell cycle arrest is tested is determined by calculating the relative lengthening of the G1 phase of the cell cycle in cells from the subject, a reduced relative lengthening of the G1 phase in the presence of the cell division inhibitor substance in said cells, as compared to control cells not having a cell cycle regulatory defect at the G1/S phase transition, being taken as an indication of a cell cycle regulatory defect at the G1/S phase transition in said non-neuronal cell of said subject, wherein a reduced relative lengthening of the G1 phase following treatment with said cell division G1 inhibitor substance relative to that of a non-neuronal reference cell of a healthy individual indicates decreased effectiveness of the G1/S cell cycle checkpoint.

Claim 9. **(Withdrawn – Currently Amended)** A method according to The method of claim 3 wherein the responsiveness of said non-neuronal cell of said subject to the

cells to said the cell division **G1** inhibitor substance or stimulus that induces cell cycle arrest is tested is determined by analysis of expression of a cell cycle regulatory protein or an mRNA encoding a cell cycle regulatory protein.

- Claim 10. (**Withdrawn – Currently Amended**) A method as claimed in The method of claim 9 wherein the cell cycle regulatory protein is selected from the group consisting of CDKN3, p15ink4B, p16ink4A, p19ink4D, p27kip1, p21cip1, p57kip2 and TP53.
- Claim 11. (**Withdrawn – Currently Amended**) A method according to The method of claim 5 wherein the stimulus that induces **G1** cell cycle arrest is DNA damage and the responsiveness of said non-neuronal cell of said subject the cells to said the cell this stimulus is determined tested by analysis of expression of a DNA damage-response element.
- Claim 12. (**Withdrawn – Currently Amended**) A method according to The method of claim 11 wherein the DNA damage-response element is selected from the group consisting of TP53, Gadd34, Gadd45A, Gadd45B, Gadd45G, Gadd153 and PCNA.
- Claim 13. (**Withdrawn – Currently Amended**) A method according to The method of claim 3 wherein the responsiveness of said non-neuronal cell of said subject the cells to the said cell division **G1** inhibitor substance or stimulus that induces cell cycle arrest is tested is determined by assessment of cell viability or cell death, wherein increased cell survival or a reduced degree of cell death in said non-neuronal cell of said subject cells, as compared to control cells not having a cell cycle regulatory defect at the G1/S phase transition, following treatment with exposure to the said cell division **G1** inhibitor substance or other stimulus that induces cell cycle arrest is taken as an indication of the presence of a cell cycle regulatory defect at the G1/S phase transition relative to that of a non-neuronal

reference cell of a healthy individual indicates decreased effectiveness of the G1/S cell cycle checkpoint.

- Claim 14. **(Withdrawn – Currently Amended)** A method according to The method of claim 3 wherein the responsiveness of said non-neuronal cell of said subject ~~the~~ cells to said cell division G1 inhibitor substance or stimulus which elicits cell cycle arrest ~~is tested~~ is determined by analysis of expression of a cell death related protein or an mRNA encoding a cell death related protein.
- Claim 15. **(Withdrawn – Currently Amended)** A method according to The method of claim 14 wherein the cell death related protein is a member of the bcl-2 family of proteins.
- Claim 16. **(Withdrawn – Currently Amended)** A method according to The method of claim 3 wherein the responsiveness of said non-neuronal cell of said subject ~~the~~ cells to ~~the~~ said cell division G1 inhibitor substance or stimulus which elicits cell cycle arrest ~~is tested~~ is determined by assessment of DNA content of said non-neuronal cell of said subject ~~the~~ cells with or without cell cycle analysis.
- Claim 17. **(Currently Amended)** A method according to claim 1 + The method of any of claims 1-2, wherein ~~the~~ non-neuronal cells are lymphocytes said non-neuronal cell of said subject is a lymphocyte.
- Claims 18-29. **(Canceled).**
- Claim 30. **(New)** The method of claim 1, wherein said neurological condition is incipient Alzheimer's disease.
- Claim 31. **(New)** The method of claim 1, wherein said neurological condition is possible Alzheimer's disease.

- Claim 32. (**New**) The method of claim 1, wherein said neurological condition is probable Alzheimer's disease.
- Claim 33. (**New**) The method of claim 5, wherein the responsiveness of said non-neuronal cell of said subject to said stimulus that induces G1 cell cycle arrest is determined by a cell proliferation assay, wherein higher proliferative activity in said non-neuronal cell of said subject following exposure to said stimulus that induces G1 cell cycle arrest relative to that of a non-neuronal reference cell of a healthy individual indicates decreased effectiveness of the G1/S cell cycle checkpoint.
- Claim 34. (**New**) The method of claim 5, wherein the responsiveness of said non-neuronal cell of said subject to said stimulus that induces G1 cell cycle arrest is determined by calculating the relative lengthening of the G1 phase of the cell cycle in said non-neuronal cell of said subject, wherein a reduced relative lengthening of the G1 phase following exposure to said stimulus that induces G1 cell cycle arrest relative to that of a non-neuronal reference cell of a healthy individual indicates decreased effectiveness of the G1/S cell cycle checkpoint.
- Claim 35. (**New**) The method of claim 5 wherein the responsiveness of said non-neuronal cell of said subject to said stimulus that induces G1 cell cycle arrest is determined by analysis of expression of a cell cycle regulatory protein or an mRNA encoding a cell cycle regulatory protein.
- Claim 36. (**New**) The method of claim 35 wherein the cell cycle regulatory protein is selected from the group consisting of CDKN3, p15ink4B, p16ink4A, p19ink4D, p27kip1, p21cip1, p57kip2 and TP53.
- Claim 37. (**New**) The method of claim 5 wherein the responsiveness of said non-neuronal cell of said subject to said stimulus that induces G1 cell cycle arrest is determined by assessment of cell viability or cell death, wherein increased cell survival or a

reduced degree of cell death in said non-neuronal cell of said subject following exposure to said stimulus that induces G1 cell cycle arrest relative to that of a non-neuronal reference cell of a healthy individual indicates decreased effectiveness of the G1/S cell cycle checkpoint.

- Claim 38. (**New**) The method of claim 5 wherein the responsiveness of said non-neuronal cell of said subject to said stimulus which elicits G1 cell cycle arrest is determined by analysis of expression of a cell death related protein or an mRNA encoding a cell death related protein.
- Claim 39. (**New**) The method of claim 38 wherein the cell death related protein is a member of the bcl-2 family of proteins.
- Claim 40. (**New**) The method of claim 5 wherein the responsiveness of said non-neuronal cell of said subject to said stimulus which elicits G1 cell cycle arrest is determined by assessment of DNA content of said non-neuronal cell of said subject with or without cell cycle analysis.